

AMENDMENTS TO THE CLAIMS

The following claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

1. (Currently Amended) A tip for use in a plasma arc torch comprising:
an electrically conductive body; and
a central exit orifice, a plurality of swirl holes, and a plurality of secondary gas holes formed through the electrically conductive body;
~~a plurality of swirl holes; and~~
~~a plurality of secondary gas holes,~~
wherein the swirl holes direct a plasma gas to generate the plasma stream, the central exit orifice provides for the exit of the plasma stream, and the secondary gas holes direct a secondary gas to stabilize the plasma stream exiting the exit orifice.
2. (Currently Amended) A tip for use in a plasma arc torch comprising:
an electrically conductive body; and
a central exit orifice, at least one swirl passage, and at least one swirl passage formed through the electrically conductive body; and
~~at least one swirl passage~~, wherein the swirl passage directs a plasma gas to generate a plasma stream.

3. (Currently Amended) A tip for use in a plasma arc torch comprising:
an electrically conductive body;
a central exit orifice and at least one swirl hole formed through the
electrically conductive body; and
~~at least one swirl hole~~, wherein the swirl hole directs a plasma gas to
generate a plasma stream.
4. (Currently Amended) A tip for use in a plasma arc torch comprising:
an electrically conductive body including an annular flange and a distal
face formed on the annular flange;
a central exit orifice formed through the electrically conductive body;
~~an annular flange formed around the electrically conductive body;~~
~~a distal face formed on the annular flange;~~ and
at least one secondary gas passage formed on the distal face,
wherein the secondary gas passage directs a secondary gas to stabilize a
plasma stream that exits the tip.
5. (Currently Amended) An improved tip of the type which is used in a
plasma arc torch to generate a pilot arc and provide for the exit of a plasma stream
from a central exit orifice, wherein the improvement comprises:
an electrically conductive body; and
at least one swirl hole formed in the electrically conductive body of the
tip to direct a plasma gas that generates the plasma stream.

6. (Currently Amended) An improved tip of the type which is used in a plasma arc torch to generate a pilot arc and provide for the exit of a plasma stream from a central exit orifice, wherein the improvement comprises:

an electrically conductive body; and

at least one secondary gas hole formed in the conductive body of the tip to direct a secondary gas that stabilizes the plasma stream.

7. (Currently Amended) An apparatus for use in a plasma arc torch, the apparatus comprising a single-piece electrically conductive body defining a plurality of plasma gas passageways and a plurality of secondary gas passageways.

8. (Currently Amended) A method of operating a plasma arc torch comprising the step of maintaining a constant flow ratio of secondary gas to plasma gas across a range of operating amperages by using a set of different tips, each tip having an electrically conductive body, and at least one swirl passageway and at least one secondary gas passageway formed through the electrically conductive body.

9. (Previously Presented) The method according to Claim 8, wherein the flow ratio is approximately 2:1.